

On the Lectotypification of *Danaea elliptica*

DAVID B. LELLINGER

U. S. National Herbarium, Smithsonian Institution, Washington, DC 20560-0166

ABSTRACT.—Prior lectotypifications of *Danaea elliptica* are rejected because they did not take into account the one adequate specimen cited by the author of the species. This specimen is chosen here as lectotype, which enables the name *D. elliptica* to continue to be used in its usual sense.

J. E. Smith in Rees (1808), in his treatment of *Danaea*, included *D. alata* J. Smith, *D. nodosa* (L.) J. Smith, *D. simplicifolia* Rudge, and one new species, *D. elliptica* J. E. Smith in Rees. The latter three species are closely related, although *D. simplicifolia* is obviously different in having simple, rather than pinnate laminae. J. E. Smith was careful to distinguish his new species from the related species *D. nodosa*, as his descriptions and excerpts from his notes illustrate:

1. *D. nodosa*: “Stalk scarcely winged; leaflets linear-oblong, sessile, pointed, nearly entire, covered with capsules to the edge. Radical scales acute.

“Each frond is about four feet high . . . Leaflets . . . six or eight inches long, oblong, almost linear, entire, wavy, with a taper point . . . Capsules . . . [having] each row extending from the main rib very nearly to the margin . . .”

2. *D. elliptica*: “Stalk scarcely winged; leaflets elliptic-oblong, stalked, pointed, nearly entire, bare of fructification near the margin.”

“The fronds are but half as tall as in the former [*D. nodosa*], and their leaflets half as long, though somewhat broader and elliptical. The latter, moreover, stand on short partial footstalks. The rows of capsules scarcely extend to near the edge of the leaflet on which they grow, but are more remarkably separated from each other, at least in a half-ripe state, by a double prominent undulated membrane.”

It is clear from the foregoing that J. E. Smith understood the differences between these two species, which have been maintained as separate taxa by virtually all authors since the time of his publication. *Danaea elliptica* is a smaller plant with nodose stipes and fewer, shorter, more elliptical pinnae (Lellinger, 1989, p. 85). Rolleri (pers. comm.) has found additional differences in lamina shape, venation, and perispore surface.

What is less clear is J. E. Smith's citation of material and, consequently, the typification of *D. elliptica*. He cited the pre-Linnaean phrase name given by Sloane (1707, p. 85) and the reference “Sloane Jamaic. v. 1. 85. t. 41, fig. 1.” Regarding specimens, he only commented, “Observed by Sloane in Jamaica, from whence the younger Linnaeus obtained a specimen.” He did not directly cite any specimens as if he had seen them, which seems strange by modern standards, but was not unusual in his day. According to W. T. Stearn (1988, p. 201), J. E. Smith was very familiar with both the Sloane and Linnean Her-

baria. As it turns out, two specimens are involved, both collected by Sloane in Jamaica.

The specimen from Mt. Diablo, Jamaica (cat. no. 1183, BM-SL) consists of three sterile fronds of *D. nodosa*. One is large and mature, the other two smaller and juvenile. The juvenile fronds, which were drawn for Sloane's illustration t. 41, f. 1, bear some resemblance to *D. elliptica* in size and outline. However, the laminae have more lateral pinna pairs for their size, the pinnae are sessile or nearly so, and the pinna bases are distinctly acute and almost symmetrical, all characters of *D. nodosa*. This specimen may be viewed at <http://www.nhm.ac.uk/botany/>, in the Sloane database.

Although it seems unlikely, the Mt. Diablo specimen could be a mixed collection, for both *D. nodosa* and *D. elliptica* occur in Jamaica (Proctor, 1985, pp. 61–62). The veins of the juvenile fronds are ca. 1 mm distant with slightly diverging veins in *D. elliptica*, but ca. 0.75 mm distant with strictly parallel veins in *D. nodosa*. These differences can be seen in all but the most juvenile fronds and can be used to make a positive identification of the juvenile fronds.

The specimen from an unknown locality in Jamaica ("1245 *Acrostichum nodosum*," LINN) was added to the Linnean Herbarium after 1767 (Jackson, 1912, pp. 26, 28), which is consistent with J. E. Smith's statement about it in his description. By 1945, this specimen was not present in LINN (Savage, 1945 p. 186), nor was it on the IDC microfiche of the Linnean Herbarium made a few years later. Fortunately, the specimen is in the J. E. Smith collection (cat. no. 1645.7, BM). Although the specimen lacks a rhizome, it does have one sterile frond with a nodose stipe and three pairs of lateral, ascending pinnae. The pinnae are elliptic-oblongate, relatively wide, and taper rather abruptly to an acuminate, entire to subcrenate apex. No centimeter scale is present on the microfiche; I estimate that the pinnae are ca. 13–15 cm long and 3.4 cm wide at their widest point distal to the middle of the pinna. A much smaller, fertile lamina has a partial stipe broken off, presumably above the most distal node, and also three pinna pairs; the middle pair is broken off. The pinnae are oblong-oblongate and are estimated to be ca. 3.7–4.8 cm long and 1.1–1.4 cm wide at their widest point distal to the middle of the pinna. According to Savage's handwritten and unpublished catalogue accompanying the IDC microfiche of the J. E. Smith collection, it is labelled "Ind. Occ. H[erb] L. fil.," which can be seen on the microfiche itself. I suppose the specimen was moved from the Linnean Herbarium to the J. E. Smith collection between 1912 and 1945 because it was type material of one of J. E. Smith's own species.

It is clear that J. E. Smith saw both Sloane specimens, as he was familiar with both collections (Stearn, 1988, p. 201). Because his description mentioned a difference in the position of the synangia and because the Sloane specimen then in the Linnean Herbarium was mature and fertile, his description of *D. elliptica* must have been based principally or entirely on that specimen, and the information about the fertile frond exclusively so. The role that the Mt. Diablo specimen played is problematical. On it, an annotation "*Asplenium nodosum* β " was written between the two juvenile fronds and the larger frond by Solander, Linnaeus' amanuensis. The position of the annotation

might signal Solander's differentiating between the two, or J. E. Smith might have thought that it did. He may have included the reference to t. 41, f. 1 because the drawing somewhat resembles *D. elliptica* or because he thought the two fronds on which the drawing was based were *D. elliptica*. In either case, citing the figure may have been only an attempt to identify it with his species, which was based on the LINN specimen.

Underwood (1902, p. 672), who was the first to choose a lectotype of *D. elliptica*, stated "Type from Jamaica, Sloane, pl. 41, f. 1." This is clearly intended as the illustration, rather than the Sloane specimen from which it was drawn, which he did not cite. According to Curtis (1908, p. 10), Underwood "made repeated visits to the herbaria of Europe for comparison and study of material." Because his monograph (Underwood, 1902, p. 671) cited material from B, K and P, but none from BM, presumably he saw neither Sloane specimen. Underwood probably chose t. 41, f. 1 because J. E. Smith did not directly cite either Sloane specimen or, more likely, because it was the only part of the protologue that he himself had seen. His choice may have even been mechanical, the illustration being the first element in the protologue mentioned by J. E. Smith. Because the specimen underlying the illustration is *D. nodosa*, because the specimen and/or illustration were misidentified, and because the selection may have been mechanical, I believe that Underwood's lectotype should be set aside.

Proctor (1985, p. 62) concluded that the lectotype was Sloane no. 1183, without comment or mentioning Underwood's prior choice. Baksh-Comeau (2000, p. 25) misstated Underwood and also cited the same lectotype. Because Proctor's later lectotype is *D. nodosa* and because he did not show cause to reject Underwood's prior lectotype, I believe this lectotype also should be set aside.

In my opinion, a more logical lectotype is available and should be chosen, which I do here: Locality unknown, Jamaica, *Sloane* (BM-Hb. J. E. Smith cat. no. 1645.7 ex LINN) This choice of lectotype has the advantage of fixing the name *D. elliptica* J. E. Smith in Rees on a specimen inferentially cited by and undoubtedly seen by J. E. Smith, and the additional advantage of allowing the name to be used in its usual sense, rather than becoming a synonym of *D. nodosa*.

ACKNOWLEDGMENTS

I thank Dr. Robbin Moran, Dr. Jefferson Prado, and Dr. Alan Smith for their reading of the manuscript and helpful comments.

LITERATURE CITED

- BAKSH-COMEAU, Y. S. 2000. Checklist of the pteridophytes of Trinidad & Tobago. *Fern Gaz.* 16:11–122.
- CURTIS, C. C. 1908. A biographical sketch of Lucien Marcus Underwood. *Bull. Torrey Bot. Club* 35:1–12.
- JACKSON, B. D. 1912. *Index to the Linnean Herbarium*. . . Linnean Society, London.

- LELLINGER, D. B. 1989. The Ferns and Fern-allies of Costa Rica, Panama, and the Chocó (Part 1: Psilotaceae through Dicksoniaceae). *Pteridologia* 2A:1–364.
- PROCTOR, G. R. 1985. Ferns of Jamaica. British Museum (Natural History), London.
- REES, A. 1808. The Cyclopaedia, vol. 11, DANAEA. Longman. . ., London.
- SAVAGE, S. 1945. A Catalogue of the Linnean Herbarium. Linnean Society of London, London.
- STEARNS, W. T. 1988. J. E. Smith (1759–1828): First President of the Linnean Society and his herbarium. *Bot. J. Linn. Soc.* 96:199–216.
- UNDERWOOD, L. M. 1902. American Ferns—V. A review of the genus *Danaea*. *Bull. Torrey Bot. Club* 29:669–679.